

REMARKS

Applicants again note that an Information Disclosure Statement was filed in connection with this application on January 23, 2003. The Examiner did not acknowledge having considered the references included with that Information Disclosure Statement by returning a properly initialed copy of the form PTO-1449. In the Office Action Summary that accompanied the Office Action, dated October 29, 2003, the Examiner checked the box that a form PTO-1449 was attached, but the Office Action included no such attachment. Therefore, Applicants continue to respectfully request that the Examiner consider the references, initial the form PTO-1449, and return a copy to Applicants with the next communication.

In the non-final Office Action, the Examiner rejected claims 1-3, 11, 17, and 18 under 35 U.S.C. § 102(b) as anticipated by Cotton et al. (U.S. Patent No. 5,255,264); rejected claims 4 and 20 under 35 U.S.C. § 103(a) as unpatentable over Cotton et al. in view of Chalmers et al. (U.S. Patent No. 6,052,364); rejected claims 5-10, 13-16, 19, and 22-26 under 35 U.S.C. § 103(a) as unpatentable over Cotton et al. in view of Gupta et al. (U.S. Patent No. 6,272,151); and rejected claims 12 and 21 under 35 U.S.C. § 103(a) as unpatentable over Cotton et al.

Applicants respectfully traverse the Examiner's rejections under 35 U.S.C. §§ 102 and 103. Claims 1-26 remain pending.

At pages 2 and 3 of the Office Action, the Examiner rejected claims 1-3, 11, 17, and 18 under 35 U.S.C. § 102(b) as allegedly anticipated by Cotton et al. Applicants respectfully traverse the rejection.

Claim 1 recites a combination of features of an interconnect network for operation within a communication node. The interconnect network includes a plurality of local line card modules, a selectable number of local interconnect modules, and an expanded interconnect module. The local line card modules are configured to process information received at a plurality of speeds and formatted according to a plurality of protocols. The selectable number of local interconnect modules are connected to the local line card modules and located proximate to each other. Each of the local interconnect modules includes local transfer elements for transferring information between a plurality of local I/O channels and for transferring information between the plurality of local I/O channels and a plurality of non-local I/O channels. The expanded interconnect module is located proximate to the local interconnect modules and includes coupling means for electrically coupling to the non-local I/O channels, and expanded transfer elements for transferring information between the local interconnect modules.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either expressly or impliedly. Any feature not directly taught must be inherently present. In other words, the identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. § 2131. Cotton et al. does not disclose or suggest the features recited in claim 1. For example, Cotton et al. does not disclose a plurality of local line card modules that are configured to process information received at a plurality of speeds and formatted according to a plurality of protocols, as recited in claim 1.

The Examiner alleged that Cotton et al. discloses this feature by disclosing "a plurality of protocols and speeds to include the standards: T1, CEPT, and ISDN for compatibility to this system where all are known to have distinct bit rates and protocol communication" and cited column 2, lines 19-24, of Cotton et al. for support (Office Action, page 2). Applicants disagree.

At column 2, lines 19-24, Cotton et al. discloses:

Another object of this invention is to provide a digital switching network which is compatible with digital lines such as T1 carriers in United States or CEPT carriers in Europe, and with integrated service digital networks (ISDN).

In this paragraph, Cotton et al. discloses that the digital switching network is compatible with digital lines, such as T1 carriers, CEPT carriers, and ISDN networks. Contrary to the Examiner's allegation, this section of Cotton et al. does not disclose or imply a plurality of local line card modules that process information received at a plurality of speeds and formatted according to a plurality of protocols.

In fact, Cotton et al. discloses something quite different. Cotton et al. discloses that each communications link received by a switch element carries thirty-two channels of time division multiplexed (TDM) digital information in a serial format (col. 7, lines 34-36; col. 9, lines 50-52). Therefore, Cotton et al. does not disclose or suggest a plurality of local line card modules that process information received at a plurality of speeds and formatted according to a plurality of protocols, as recited in claim 1.

Because Cotton et al. does not disclose local line card modules, Cotton et al. cannot disclose a selectable number of local interconnect modules that connect to the local line card modules or an expanded interconnect module located proximate the local interconnect modules, as recited in claim 1.

For at least these reasons, Applicants submit that claim 1 is not anticipated by Cotton et al. Claims 2, 3, 11, 17, and 18 depend from claim 1 and are, therefore, not anticipated by Cotton et al. for at least the reasons given with regard to claim 1.

Applicants presented similar arguments in the Amendment, filed August 19, 2003. Nevertheless, the Examiner repeated the rejection of claims 1-3, 11, 17, and 18 without addressing Applicants' arguments, stating that "Applicant's arguments with respect to claims 1 - 26 have been considered but are moot in view of the new ground(s) of rejection" (Office Action, page 9). The Examiner did not, however, provide a new ground of rejection with respect to claims 1-3, 11, 17, and 18. Accordingly, if the Examiner maintains this rejection once again, Applicants respectfully request that the Examiner consider and address Applicants' arguments or withdraw the rejection.

At pages 3 and 4 of the Office Action, the Examiner rejected claims 4 and 20 under 35 U.S.C. § 103(a) as allegedly unpatentable over Cotton et al. in view of Chalmers et al. Applicants respectfully traverse the rejection.

Claim 4 depends from claim 1. The disclosure of Chalmers et al. provides nothing to cure the deficiencies in the disclosure of Cotton et al. noted above with regard to claim 1. Therefore, claim 4 is patentable over Cotton et al. and Chalmers et al., whether taken alone or in any reasonable combination, for at least the reasons given with regard to claim 1.

Further, Chalmers et al. is directed to a totally non-analogous field from Cotton et al. Chalmers et al. is directed to a portable satellite-based terminal (col. 1, lines 5-7), whereas, Cotton et al. is directed to multi-line telephone systems (col. 1, lines 8-10). Applicants submit that one skilled in the art with knowledge of the Cotton et al. disclosure

would not have been motivated to combine the features of Chalmers et al. with the features of Cotton et al., without the benefit of Applicants' disclosure. Also, the Examiner has cited no portion of either Cotton et al. or Chalmers et al. for providing objective motivation for combining the teachings of a portable satellite-based terminal with a multi-line telephone system.

The Examiner alleged that "[o]ne of ordinary skill in the art would have been motivated to [include hot-swappable capability into the Cotton system] in order eliminate system downtime due to module failures requiring removal and replacement" and cited column 8, lines 59-60, of Chalmers et al. for support (Office Action, page 4). Applicants disagree.

At column 8, lines 54-60, Chalmers et al. discloses:

For configurations up to 90 channels, the entire NMS/Hub is confined to a single standard 19 inch rack. The rack comprises general purpose computers, a fully digital telephone switch, and universal chassis for housing the channel units, the frequency generation unit, the channel bank and other specialty modules are hot-swappable so that units can be removed and inserted without any service interruption.

Chalmers et al. does not clearly identify what "units" are hot-swappable. Nevertheless, Chalmers et al. clearly does not disclose or suggest hot-swap means for changing a selectable number of local interconnect modules included in an interconnect network that includes the features of claim 1.

For at least these reasons, Applicants submit that claim 4 is patentable over Cotton et al. and Chalmers et al., whether taken alone or in any reasonable combination.

Applicants presented similar arguments in the Amendment, filed August 19, 2003. Nevertheless, the Examiner repeated the rejection of claim 4 without addressing Applicants' arguments, stating that "Applicant's arguments with respect to claims 1 - 26

have been considered but are moot in view of the new ground(s) of rejection" (Office Action, page 9). The Examiner did not, however, provide a new ground of rejection with respect to claim 4. Accordingly, if the Examiner maintains this rejection once again, Applicants respectfully request that the Examiner consider and address Applicants' arguments or withdraw the rejection.

Independent claim 20 recites a combination of features of a dynamically scalable communication interconnect. The interconnect includes a selectable number of local interconnects and a single expanded interconnect. Each of the local interconnects includes associated transfer elements for transferring information through the associated local interconnect. The expanded interconnect includes elements for coupling to the selected number of local interconnects and expanded transfer elements for transferring information between the local interconnects. The selected number of local interconnects can be varied while the expanded interconnect is transferring information.

Neither Cotton et al. nor Chalmers et al., whether taken alone or in any reasonable combination, discloses or suggests the features recited in claim 20. For example, neither Cotton et al. nor Chalmers et al. discloses or suggests a selected number of local interconnects that can be varied while an expanded interconnect is transferring information.

The Examiner alleged that Chalmers et al. discloses hot-swappable modules (Office Action, page 4). The Examiner also alleged that "[o]ne of ordinary skill in the art would have been motivated to [include hot-swappable capability into the Cotton system] in order eliminate system downtime due to module failures requiring removal and replacement"

and cited column 8, lines 59-60, of Chalmers et al. for support (Office Action, page 4).

Applicants disagree.

Column 8, lines 54-60, of Chalmers et al. has been reproduced above. Chalmers et al. does not clearly identify what "units" are hot-swappable. Nevertheless, Chalmers et al. clearly does not disclose or suggest a selected number of local interconnects that can be varied while an expanded interconnect, which transfers information between the local interconnects, is transferring information.

Further, Chalmers et al. is directed to a totally non-analogous field from Cotton et al. Chalmers et al. is directed to a portable satellite-based terminal (col. 1, lines 5-7), whereas, Cotton et al. is directed to multi-line telephone systems (col. 1, lines 8-10). Applicants submit that one skilled in the art with knowledge of the Cotton et al. disclosure would not have been motivated to combine the features of Chalmers et al. with the features of Cotton et al., without the benefit of Applicants' disclosure. Also, the Examiner has cited no portion of either Cotton et al. or Chalmers et al. for providing objective motivation for combining the teachings of a portable satellite-based terminal with a multi-line telephone system.

For at least these reasons, Applicants submit that claim 20 is patentable over Cotton et al. and Chalmers et al., whether taken alone or in any reasonable combination.

At pages 4-8 of the Office Action, the Examiner rejected claims 5-10, 13-16, 19, and 22-26 under 35 U.S.C. § 103(a) as allegedly unpatentable over Cotton et al. in view of Gupta et al. Applicants respectfully traverse the rejection.

Claims 5-10, 13-16, and 19 depend from claim 1. The disclosure of Gupta et al. provides nothing to cure the deficiencies in the disclosure of Cotton et al. described above with regard to claim 1. Therefore, claims 5-10, 13-16, and 19 are patentable over Cotton et al. and Gupta et al., whether taken alone or in any reasonable combination, for at least the reasons given with regard to claim 1. Claims 5-10, 13-16, and 19 are also patentable over Cotton et al. and Gupta et al. for reasons of their own. Some of these reasons are discussed below with regard to claims 21-26.

Independent claim 22 recites, among other things, quality of service means for differentiating between information coupled into the local I/O channels based on an associated priority of the information and indicating unavailability for receiving information having a particular associated priority on one or more of the local I/O channels. Neither Cotton et al. nor Gupta et al., whether taken alone or in any reasonable combination, discloses or suggests these features. For example, neither Cotton et al. nor Gupta et al. discloses or suggests indicating unavailability for receiving information having a particular associated priority on one or more of the local I/O channels.

The Examiner admitted that Cotton et al. does not disclose this feature (Office Action, page 6). The Examiner relied on Gupta et al., however, for allegedly disclosing "different priority levels associated with the data transfers" and cited column 7, lines 60-65, and column 8, lines 1-5, of Gupta et al. for support (Office Action, page 6). Without admitting that the Examiner's allegation is accurate, Applicants submit that the Examiner has not addressed the particular language of claim 22. For example, claim 22 does not recite simply different priority levels associated with data transfers but, instead, recites

indicating unavailability for receiving information having a particular associated priority on one or more of the local I/O channels. Gupta et al. does not disclose this feature.

At column 7, line 58, through column 8, line 4, Gupta et al. discloses:

As mentioned earlier, both Time Division Multiplexed (TDM) traffic and packet data are transported as micro cells over the tiered buses of the SMN. A contention mechanism is utilized to avoid cell collision and is described later. Cells are assigned one of five priority levels. TDM cells are given the highest priority by default and can be immediately transmitted by bypassing all packet cells in the transmit queue. These cells can pre-emptively access the bus by interrupting a packet in transit. On release, the packet restarts where it left off. In addition to the TDM traffic, there are four user-assigned priority levels for the packet traffic. Higher priority packets are transmitted before lower priority packets. Within the same priority, packets are transmitted on a first come first served, distributed queuing basis.

In this section, Gupta et al. discloses that micro cells are assigned different priority levels, with TDM cells being assigned the highest priority level. Nowhere in this section, however, does Gupta et al. disclose or suggest indicating unavailability for receiving information having a particular associated priority on one or more of local I/O channels.

For at least these reasons, Applicants submit that claim 22 is patentable over Cotton et al. and Gupta et al., whether taken alone or in any reasonable combination.

Independent claim 23 recites, among other things, an interconnect network that is adapted for transferring information as information cells, and the local and expanded transfer elements further include clumping means for substantially simultaneously transferring a plurality of the information cells. Neither Cotton et al. nor Gupta et al., whether taken alone or in any reasonable combination, discloses or suggests these features. For example, neither Cotton et al. nor Gupta et al. discloses or suggests local and expanded transfer elements that include clumping means for substantially simultaneously transferring a plurality of the information cells.

The Examiner alleged that Gupta et al. discloses SMN broadcasts that transmit cells across buses that use parallel processing (Office Action, page 7). The Examiner further alleged that Gupta et al. discloses a plurality of cells that are transferred simultaneously and cited column 5, lines 59-63, of Gupta et al. for support (Office Action, page 7). Without admitting that the Examiner's statements are accurate, Applicants submit that the Examiner has not addressed the particular language of claim 23. For example, claim 23 does not recite simply transferring a plurality of cells simultaneously but, instead, recites local and expanded transfer elements that include clumping means for substantially transferring a plurality of information cells. Gupta et al. does not disclose this feature.

At column 5, lines 59-65, Gupta et al. discloses:

The SMN is a broadcast switch using tiered system buses, Tier-0, Tier-1 and Tier-2, as shown in FIG. 2. Physically, the system buses can be broken down into different tiers, each one running at a different rate. The Tier-0 bus 51 consists of four independent 16-bit parallel buses: a service-transmit bus; a service-receive bus; a protection-transmit bus; and a protection-receive bus.

In this section, Gupta et al. discloses that the SMN includes tiered system buses. Nowhere in this section, however, does Gupta et al. disclose or suggest local and expanded transfer elements that include clumping means for substantially transferring a plurality of information cells, as recited in claim 23. Therefore, even if this disclosure of Gupta et al. was combined with the disclosure of Cotton et al., the features recited in claim 23 would not result.

For at least these reasons, Applicants submit that claim 23 is patentable over Cotton et al. and Gupta et al., whether taken alone or in any reasonable combination.

Independent claim 24 recites, among other things, a selectable number of local communication modules that provide dynamic bandwidth scalability to the communication

node; independent claim 25 recites, among other things, a selectable number of local communication modules that provide dynamic bandwidth scalability to the communication node; and independent claim 26 recites, among other things, scaling bandwidth of the interconnect network by including a selectable number of local interconnect modules in the plurality of local interconnect modules. Neither Cotton et al. nor Gupta et al., whether taken alone or in any reasonable combination, discloses or suggests these features.

The Examiner rejected claims 24-26 based on a combination of Cotton et al. and Gupta et al. (Office Action, page 6). In the grounds of rejection, however, the Examiner did not cite any portion of Gupta et al. as allegedly disclosing any of the claimed features. Therefore, clarification of the grounds of rejection with regard to claims 24-26 is respectfully requested.

Cotton et al. does not disclose that the number of terminal units 20 is selectable to provide bandwidth scalability. The disclosure of Gupta et al. provides nothing to cure this deficiency in the disclosure of Cotton et al.

For at least these reasons, Applicants submit that claims 24-26 are patentable over Cotton et al. and Gupta et al., whether taken alone or in any reasonable combination.

Applicants presented similar arguments in the Amendment, filed August 19, 2003. Nevertheless, the Examiner repeated the rejection of claims 5-10, 13-16, 19, and 22-26 without addressing Applicants' arguments, stating that "Applicant's arguments with respect to claims 1 - 26 have been considered but are moot in view of the new ground(s) of rejection" (Office Action, page 9). The Examiner did not, however, provide a new ground of rejection with respect to claims 5-10, 13-16, 19, and 22-26. Accordingly, if the Examiner

maintains this rejection once again, Applicants respectfully request that the Examiner consider and address Applicants' arguments or withdraw the rejection.

At pages 8 and 9 of the Office Action, the Examiner rejected claims 12 and 21 under 35 U.S.C. § 103(a) as allegedly unpatentable over Cotton et al. Applicants respectfully traverse the rejection.

Claim 12 depends from claim 1. Claim 12 is, therefore, patentable over Cotton et al. for at least the reasons given with regard to claim 1.

Independent claim 21 recites, among other things, redundancy generating means for generating an alternative version of information being transferred out of the interconnect network by generating a bit-by-bit exclusive-or between pairs of the groups of information words included in an information cell. Cotton et al. does not disclose or suggest this feature.

The Examiner alleged that the use of an exclusive-or operation is commonly used in hardware systems (Office Action, page 8). The Examiner further alleged that one of ordinary skill would have found it obvious to include an exclusive-or operation in a redundancy check to add or sum bits in the invention disclosed by Cotton et al. (Office Action, page 9). Regardless of whether the use of exclusive-or operations is common as alleged by the Examiner, Applicants submit that the Examiner has not established a prima facie case of obviousness with regard to claim 21. In particular, the Examiner has not provided any evidence that a redundancy generating means that generates an alternative version of information being transferred out of an interconnect network by generating a bit-by-bit exclusive-or between pairs of groups of information words included in an

information cell is known or would have been obvious in the context of the interconnect network recited in claim 21. Absent such evidence, a prima facie case of obviousness cannot be established.

For at least these reasons, Applicants submit that claim 21 is patentable over Cotton et al.


In view of the foregoing remarks, Applicants respectfully request the Examiner's reconsideration of the application and the timely allowance of pending claims 1-26.

If the Examiner does not believe that all pending claims are now in condition for allowance, the Examiner is urged to contact the undersigned to expedite prosecution of this application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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